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Ellisembia hainanensis sp. nov. from Hainan, China

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Abstract—*Ellisembia hainanensis*, isolated from decaying dicotyledonous leaves from Wuzhi Mountain, Hainan Province, is described and illustrated as a new species. The fungus is characterized by obclavate 9–11-septate brown conidia, with the hyaline apical and first subapical cells surrounded by a mucilaginous sheath. A comparative table of the morphology of similar *Ellisembia* species is provided.

Key words—fungal diversity, morphology, aquatic hyphomycetes

Introduction

The genus *Ellisembia* was introduced by Subramanian to accommodate *Sporidesmium*-like species, with *Sporidesmium coronatum* Fuckel [≡ *Embellisia coronata* (Fuckel) Subram.] as type species (Subramanian 1992). Several *Ellisembia* species have been described from China (Shi & Zhang 2007; Ma & Zhang 2007; Ma & al. 2008, 2011a,b; Ren & al. 2013; Xia & al. 2015, 2016; Wu & Zhuang 2005), and the taxonomic history of the genus has been reviewed in related papers. China has an enormous diversity of fungi occurring on dead branches and rotten submerged wood and leaves, especially Hainan Province with its 22–26°C annual average temperature. Previously, six *Ellisembia* species have been isolated from Hainan Province (Ma & al. 2008, 2011a; Ren & al. 2013; Qiao & al. 2018).

During a study of aquatic hyphomycetes in Wuzhi Mountain Preserve, Hainan Province, China, we encountered an unknown fungus that shared some features of *Ellisembia*; we describe it here as a new species, *E. hainanensis*.

Materials & methods

The culture was isolated in June 2011 from decaying leaves of a broadleaf tree in the Wuzhi Mountain Preserve, Hainan province, southern China. The leaves were cut into several 2–4 × 2–4 cm fragments, which were laid out on the surface of CMA (20 g cornmeal, 18 g agar, 40 mg streptomycin, 30 mg ampicillin, 1000 ml distilled water) for ten days; single conidia were captured with a sterilized toothpick while viewing with a CX31 microscope and cultivated on CMA in Petri plates. We observed the morphology after incubation at 28°C on CMA for one week. The pure cultures and a permanent slide were deposited in the Herbarium of the Laboratory for Conservation and Utilization of Bio-resources, Yunnan University, Kunming, P.R. China (YMF) [formerly Key Laboratory of Industrial Microbiology and Fermentation Technology of Yunnan].

Taxonomy

Ellisembia hainanensis M. Qiao & Z.F. Yu, **sp. nov.** PLATE 1

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Differs from *Ellisembia minigelatinosa* by longer conidia and fewer hyaline subapical cells covered by a mucilaginous sheath.

Type: China, Hainan, Wuzhi Mountain Preserve, 18°38′N 109°19′E, elev. 1267 m, on decaying leaves of a broadleaf tree, June 2011, coll. Ze Fen Yu. (**Holotype**, YMF 1.040416 [permanent slide]; ex-type culture, YMF1.04041).

Etymology: Latin, *hainanensis* referring to the province in which the species was found.

Colonies 2.5 cm diam. on CMA after 10 days. Mycelium partly superficial, partly immersed. Conidiophores macronematous, mononematous, erect, straight, base enlarged to subspherical or L-shaped, 16–32 × 3.5–4 µm, smooth, 1–3-septate. Conidiogenous cells monoblastic, integrated, terminal, cylindrical or lageniform, 9–11 × 3–4 µm. Conidia solitary, acrogenous, obclavate, truncate at the base, tapering to the fifth septa, brown, with the apical and first subapical cells hyaline and surrounded by a mucilaginous sheath, 9–11-distoseptate, mostly 10-septate, 45–63 × 8.0–13.5 µm, diameters 1.5–2.6 µm at the apex and 1.8–2.8 µm at the base.

Discussion

Among known species of *Ellisembia*, more than 10 species possess a mucilaginous sheath at the tip of conidia (McKenzie & al. 1995). Among them, six species are similar to *E. hainanensis* in the number of septa and conidial shape, but there are obvious differences among them. Conidiophores of six species are longer than those of *E. hainanensis,* which is distinguished from all six species by the combination of conidial septa number and size

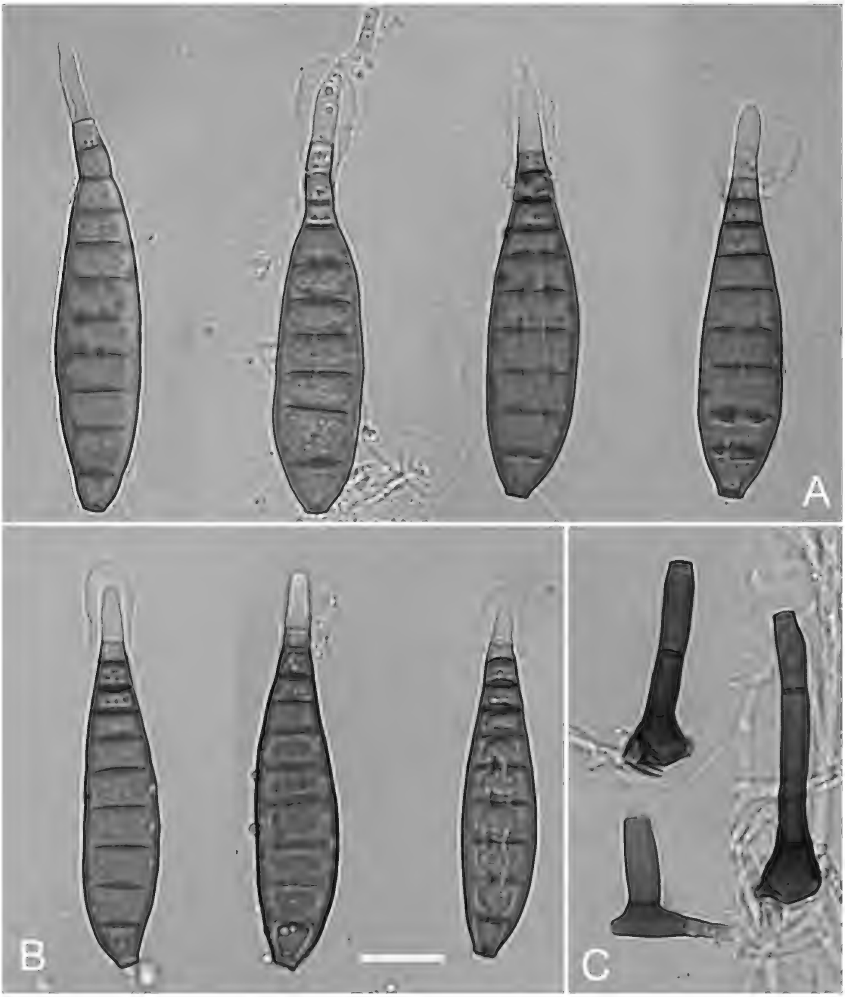

PLATE 1. *Ellisembia hainanensis* (holotype, YMF 1.40416)
A, B. Conidia; C. Conidiophores and conidiogenous cells. Scale bars = 10 µm.

(TABLE 1). *Embellisia antillana* (R.F. Castañeda & W.B. Kendr.) McKenzie and *E. globulosa* W.P. Wu differ in their wider conidia, while *E. guangdongensis* W.P. Wu produces longer and narrower conidia than *E. hainanensis*. The conidia of *E. vaginata* McKenzie are smaller and have more variable septation than those of *E. hainanensis*. *Embellisia minigelatinosa* (Matsush) W.P. Wu,

Table 1. Morphological comparison of *Ellisembia hainanensis* and similar species

Species	Conidiophore length (µm)	# septa	Conidia L × W (µm)	Reference
E. antillana	50–80	7–11	60–75 × 16–20	Wu & Zhuang (2005)
E. globulosa	110–130	8–11	50–64 × 17–18	Wu & Zhuang (2005)
E. guangdongensis	110–130	8–10	58–77 × 8–9	Wu & Zhuang (2005)
E. hainanensis	**16–32**	**9–11**	**45–63 × 8–13**	**This paper**
E. minigelatinosa	40–100	9–11	42–52 × 8–12	Wu & Zhuang (2005)
E. paravaginata	55–85	10–12	55–70 × 12–14.5	McKenzie (1995)
E. vaginata	30–60	7–11	30–50 × 7–11	McKenzie (1995)

which is the species most similar to *E. hainanensis* in conidial septation and size, is distinguished by the presence of four hyaline subapical cells; moreover, in *E. minigelatinosa* the conidia are widest the second or third septa (vs. the third and fifth septa in *E. hainanensis.*

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